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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/825,715	04/04/2001	Michael Raymond Connelly	A01029A	3158

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EXAMINER

WACHTEL, ALEXIS A

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 03/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/825,715

Applicant(s)

CONNELLY ET AL.

Examiner

Alexis Wachtel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7-9 is/are allowed.
- 6) ☒ Claim(s) 1-6, 10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

Response to Amendment

1. Applicant's amendment and accompanying Remarks filed 12-22-05 have been entered and carefully considered.

The amendment is sufficient to overcome the obviousness rejections of claims *** and the 112 2nd paragraph rejections of claims *** since the previously applied prior art fails to teach ***. Claims *** are cancelled without prejudice. New claim *** was added for consideration. However, an updated search yielded new prior art that provides a new basis of rejection as shown below. Applicant's arguments are rendered moot in view of the new grounds of rejection.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by US 4,742,472 to Sugimori et al.

With respect to claim 1: A method of controlling particle size of an emulsion polymer including the step of controlling the amount of in-process monomer present during the polymerization reaction (Col 6, lines 12-16). Examiner notes that a control of monomer flow rate constitutes a control of amount of in-process monomer used.

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With respect to claim 10. An apparatus for controlling standing monomer level in a polymerization reaction including:

- a) Temperature detecting means for detecting coolant temperature at a cooling jacket inlet (Col 3, lines 24-25);
- b) Temperature detecting means for detecting coolant temperature at a cooling jacket outlet (Col 3, lines 26-27);
- c) Detecting means for detecting coolant flow rate (Col 3, line 28).
- d) Computing means for calculating Q_{jdyn} (raw) and U_{raw} wherein U_{raw} is capped such that $U_{min} < U_{raw} < U_{max}$. Examiner notes that computer (6) is capable of performing the claimed operations.
- e) Means for obtaining V_{filt} by inputting U_{raw} into a low pass first order filter. Examiner notes that computer (6) is capable of performing the claimed operations.
- f) Means for calculating a value for the dynamic jacket heat removal. Examiner notes that computer (6) is capable of performing the claimed operations.
- g) Means for calculating a heat release value of polymerization using the dynamic jacket heat removal value. Examiner notes that computer (6) is capable of performing the claimed operations.
- h) Means for calculating a difference between the calculated heat release value of polymerization and a target heat release value of polymerization. Examiner notes that computer (6) is capable of performing the claimed operations.

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i) Computing means for determining the level of in-process monomer in the polymerization reaction. Examiner notes that computer (6) is capable of performing the claimed operations.

j) Controlling means for controlling the rate of monomer addition to the reactor such that a desired level of in-process monomer is maintained. Examiner notes that computer (6) is capable of performing the claimed operations.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,742,472 to Sugimori et al.

With respect to claims 2-4, Sugimori et al fail to explicitly teach the use of the claimed amount of monomer. However, it is well established in the emulsion polymerization art that the amount of monomer used in emulsion polymerization is highly dependent on rates of reaction and type of monomer employed. Accordingly one of ordinary skill would have determined the optimal amounts of monomer used through the process of routine experimentation when using various monomers for different applications.

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With respect to claims 5 and 6, Sugimori et al do not teach the use of the claimed monomers nor the production of the claimed polymers. However, the use of the claimed monomers is well established in the polymer industry. One of ordinary skill would have desired to have used any suitable monomer including the claimed monomers with the advantageous method disclosed by Sugimori et al since the resulting polymers would have been reacted in a controlled and uniform manner.

Allowable Subject Matter

6. The following is a statement of reasons for the indication of allowable subject matter: with regards to claim 7, Sugimori et al teach a method of controlling standing monomer level in a polymerization reaction by

- a) Temperature detecting means for detecting coolant temperature at a cooling jacket inlet (Col 3, lines 24-25);
- b) Temperature detecting means for detecting coolant temperature at a cooling jacket outlet (Col 3, lines 26-27);
- c) Detecting means for detecting coolant flow rate (Col 3, line 28).
- j) controlling the rate of monomer addition to the polymerization reaction such that a desired level of in-process monomer is maintained (Col 6, lines 12-17).
- d) Computing means for calculating Q_{jdyn} (raw) and U_{raw} wherein U_{raw} is capped such that $U_{min} < U_{raw} < U_{max}$. Examiner notes that computing means reads on (Fig.1, item 63).

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f) Means for calculating a value for the dynamic jacket heat removal.

Examiner notes that means for calculating reads on (Fig.1, item 63)

h) comparing the calculated heat release value of polymerization and a target heat release value of polymerization (Abstract, lines 6-13).

Sugimori et al do not teach

e) obtaining V_{filt} by inputting U_{raw} into a low pass first order filter.

g) calculating a heat release value of polymerization using the dynamic jacket heat removal value.

i) calculating the level of in-process monomer in the polymerization reaction. Claims 8 and 9 are allowable for depending on claim 7.

Prior Art of Record

7. The prior art of record and not relied upon is considered pertinent to Applicant's disclosure. In addition, the following references are cited for disclosing various aspects of Applicant's invention:

US 4249907; US 4249908; US 4329150; US 4241230

Arguments


8. Applicant argues that Sugimoro does not teach computational steps as claimed in claim 10. Claim 10 is directed to an apparatus. The apparatus has a controller (63) that is a means of computing. Computational steps are not seen to structurally differentiate the claimed apparatus over the prior art. Regarding claim 1, Sugimoro does teach controlling amount of in process monomer present throughout the reaction (Col 6, lines 12-16). In particular, a calculated correction

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value of BD flow rate reads on controlling the amount of in process monomer present throughout the reaction.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alex Wachtel whose telephone number is 571-272-1455. The examiner can normally be reached on 10:30am to 6:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Glenn Caldarola, can be reached at (571)-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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